

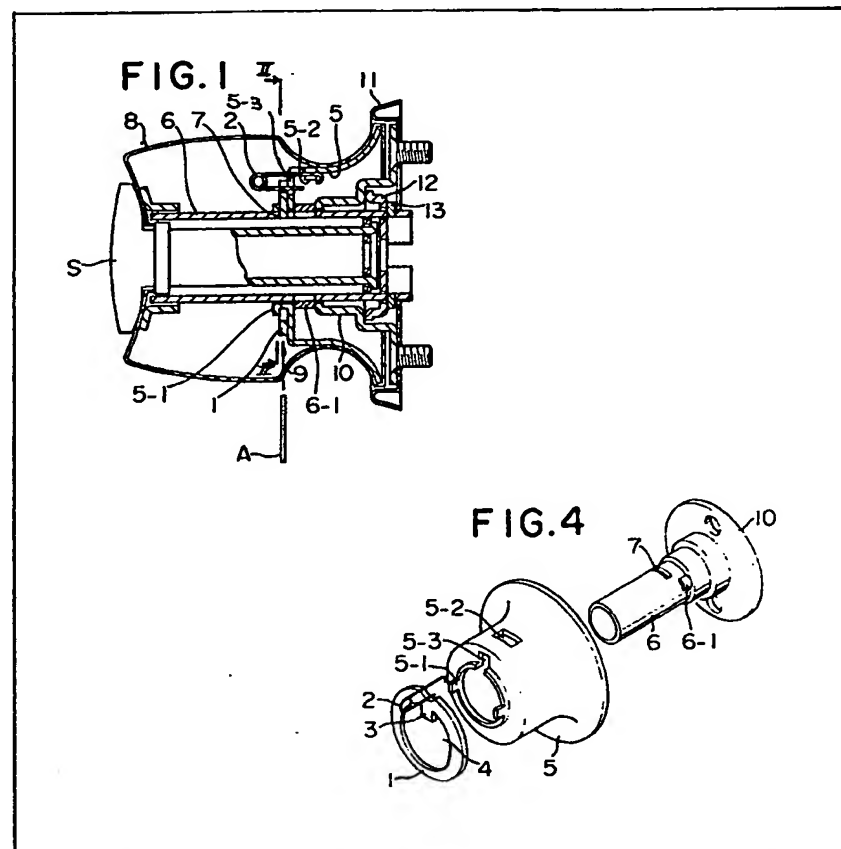
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(54) Improvements in and relating to door knobs, handles and the like

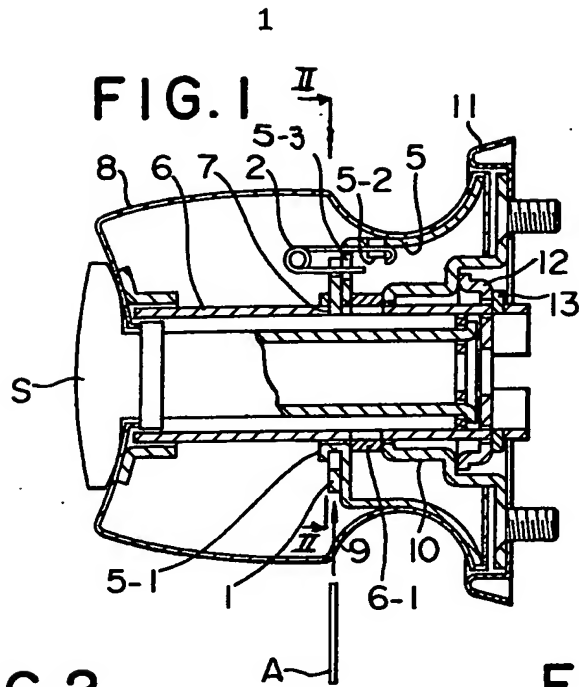
(57) A device provided for disengageably locking a knob or handle to a securing mechanism e.g. a lock, for a door, has a shaft 6, a back plate 5, which, can be removeably mounted on the shaft, and a stop member 1, such as an annular plate or ring mountable on the shaft, moveable

between a first position in which it prevents removal of the back plate from the shaft, and a second position in which it allows such removal. The stop member is urged by e.g. a spring 2 towards its first position, but can be moved to the second position by a force applied e.g. by hand using a push rod. A knob 8 on the back plate has an appropriately located opening 9 permitting the insertion of a push rod for this function.

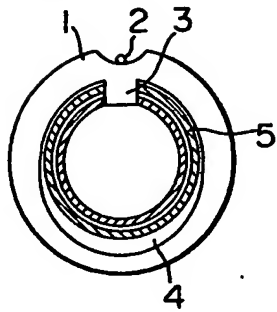


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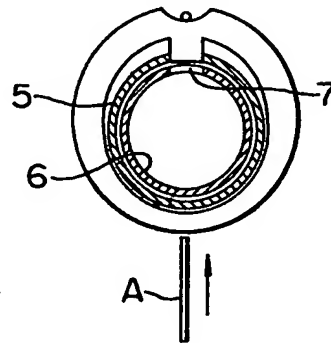
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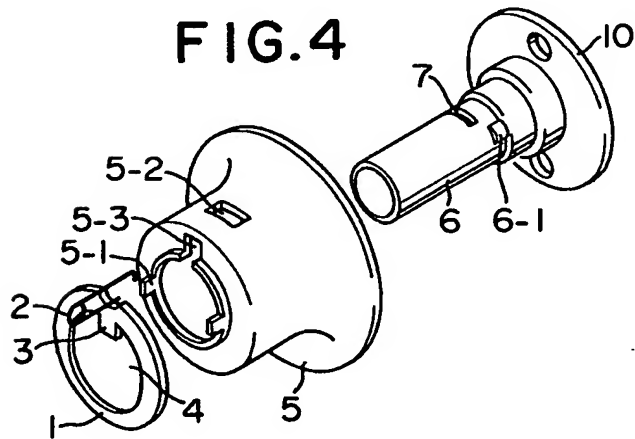
**FIG. 2**



**FIG. 3**



**FIG. 4**



# SPECIFICATION

## Improvements in and relating to door knobs, handles and the like

This invention relates to disengageable securing device for closure means e.g. a door or window lock, incorporating a knob, handle, or the like.

Systems previously proposed for mounting a knob of the kind referred to above have included a screw system and other fastening systems using cylindrical bodies. However, all of these previous systems are complex to manufacture and mount.

According to the present invention we provide, for disengageably locking a knob, handle, or the like, on a securing mechanism for a closure such as a door, a locking device comprising:

- a) a shaft;
  - b) a back plate removeably mountable on the shaft;
  - c) a stop member moveable between a first position in which it prevents removal of the back plate from the shaft, and a second position in which it allows such removal;
  - d) means for urging the stop member in said movement to the first position;
- and wherein said stop member is moveable to said second position by application of a force opposing said urging means.

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings, in which

Fig. 1 is a cross sectional elevation of a device for disengageably locking a knob to e.g. a door lock;

Fig. 2 shows part of a section through the device of Fig. 1 along the line II—II in the secured condition; and

Fig. 3 is a view similar to Fig. 2 but in the disengaged condition; and

Fig. 4 is an exploded perspective view of some of the parts of the device shown in Fig. 1.

Referring to the drawings, these show a seat member 10 attached e.g. to a door by bolts and mounted on base seat 11. A shaft 6 extends through the seat and is rotatable therein. A convex stud 6—1 is formed on the shaft and engages an annular face of seat 10; the shaft also has a clip 13 secured thereto which engages a stop plate 12 located within the seat 10. The aforesaid arrangement of stud 6—1 and clip 13 in the illustrated embodiment locates the shaft in seat 10 and secures it against unwanted axial movement. This "prefitting" has benefits as mentioned below.

Located on the shaft 6 is a generally conically shaped knob back plate 5 which is shown abutting stud 6—1. Shaft 6 is formed with a recess or hole 7 which when the device is assembled as shown lies just outside the front face of back plate 5. The back-plate 5 has a part circular projection 5—4 on its front face with two stubs 5—1 extending therefrom. A stop plate 1 in the form of a ring can be slipped over projection 5—4. The diameter of the ring opening is greater than the outer diameter of projection 5—4 or is non-circular or, as shown,

has a first portion with a diameter corresponding to the diameter of projection 5—4 and a second portion of greater diameter, (seen best in Figs. 2 and 3) allowing for radial movement of the ring. Projection 5—4 has a break 5—5 through which projection 3 on the plate 1 can pass, in use, to be received in recess or hole 7 (see Fig. 2). The outer ends of stubs 5—1 are bent around the stop plate 1 (see Fig. 1) to secure it in position on the back plate and to guide it in the movements described hereunder.

A spring 2 is mounted on the back plate 5 to urge stop plate 1 and projection 3 towards recess 7. The spring 2 shown in the drawings is fastened at one end of one arm to a tongue like spring stop 5—2, and this arm passes through opening 5—3 in the front face of back plate 5. The other arm of the spring extends generally parallel to the other arm, but spaced therefrom, also through opening 5—3. The other arm engages in a notch or recess formed in stop plate 1. With the two arms of the spring held between inner wall of opening 5—3 and the notch or recess of stop plate 1 a force biasing stop plate 1 as aforesaid is thus generated. A hollow knob 8 is fixedly mounted on back plate 5.

To enable knob 8 to be removed from the shaft 6, the knob is provided with a hole 9 inserted radially of stop plate 1. A push rod A can thus be riveted into knob 8 to move stop plate 1 against the biasing force of spring 2 until projection 3 is completely removed from recess 7. The assembly of knob 8, stop plate 1 and back plate 5 can thereupon be pulled axially off the shaft 6.

It will be appreciated that the aforementioned assembly can be mounted on the shaft in a similarly simple manner. The projection 3 automatically snapping into recess 7 and locking the assembly into position when the assembly reaches the appropriate position along the shaft.

In the drawings S designates a thumb turn.

In previously proposed systems using screws or cylindrical bodies these may become loose after some years of use and thus less efficient and reliable. In addition, such systems do not allow for the use of a prefitted shaft and seat (6, 10) as in the embodiment illustrated above; instead the shaft is generally inserted into the seat or mounting plate after the latter has been secured e.g. to a door: this gives rise to difficulties in centering of the shaft. In the case of the illustrated embodiment the seat 10 and shaft 6 will be simultaneously mounted on e.g. a door and hence the shaft 6 may be readily centred with respect e.g. to a lock casing. The knob 8 is also centred automatically by mounting it on the shaft in the manner described above.

## CLAIMS

1. For disengageably locking a knob, handle, or the like, on a securing mechanism for a closure such as a door, a locking device comprising:
  - a) a shaft;
  - b) a back plate removeably mountable on the shaft;

- c) a stop member moveable between a first position in which it prevents removal of the back plate from the shaft, and a second position in which it allows such removal;
- 5 d) means for urging the stop member in said movement to the first position; and wherein said stop member is moveable to said second position by application of a force opposing said urging means.
- 10 2. A device according to Claim 1, wherein the stop member is a plate and said movement is in a direction generally normal to the longitudinal axis of the shaft, the plate and shaft having respective elements mutually lockingly engageable upon
- 15 movement of the plate to the first position, and disengageable upon movement of the plate to the second position.
3. A device according to Claim 1, in which the locking elements are a tooth on the plate and a
- 20 recess in the shaft.
4. A device according to Claim 2, wherein the plate is ring shaped and the tooth is directed radially inward thereof.
5. A device according to any one of the preceding claims, wherein the urging means is a spring.
- 25 6. A device according to any one of the preceding claims, wherein the back plate is integral with a knob, handle or the like.
- 30 7. A device according to any one of Claims 1 to 5, wherein the back plate is attached to the inner periphery of a knob, handle or the like.
8. A device according to Claim 6 or 7, wherein the knob, handle or the like has an opening
- 35 located so that in use a rod may be inserted therein to apply to the stop plate said opposing force.
9. A device according to Claim 1, and substantially as described herein with reference to
- 40 the drawings.